

MEMBRANE DIELECTRIC ISOLATION IC FABRICATION

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ABSTRACT

General purpose methods for the fabrication of  
5 integrated circuits from flexible membranes formed of very  
thin low stress dielectric materials, such as silicon  
dioxide or silicon nitride, and semiconductor layers.  
Semiconductor devices are formed in a semiconductor layer  
of the membrane. The semiconductor membrane layer is  
10 initially formed from a substrate of standard thickness,  
and all but a thin surface layer of the substrate is then  
etched or polished away. In another version, the flexible  
membrane is used as support and electrical interconnect  
for conventional integrated circuit die bonded thereto,  
15 with the interconnect formed in multiple layers in the  
membrane. Multiple die can be connected to one such  
membrane, which is then packaged as a multi-chip module.  
Other applications are based on (circuit) membrane  
processing for bipolar and MOSFET transistor fabrication,  
20 low impedance conductor interconnecting fabrication, flat  
panel displays, maskless (direct write) lithography, and  
3D IC fabrication.

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